

## MISMATCH REPAIR DETECTION

### ABSTRACT OF THE DISCLOSURE

Mismatch Repair Detection (MRD), a novel method for DNA-variation detection,  
5 utilizes bacteria to detect mismatches by a change in expression of a marker gene.  
DNA fragments to be screened for variation are cloned into two MRD plasmids, and  
bacteria are transformed with heteroduplexes of these constructs. Resulting colonies  
express the marker gene in the absence of a mismatch, and lack expression in the  
presence of a mismatch. MRD is capable of detecting a single mismatch within 10 kb  
10 of DNA. In addition, MRD can analyze many fragments simultaneously, offering a  
powerful method for high-throughput genotyping and mutation detection.